

[FIRST AND SECOND PARAGRAPHS OF THE DETAILED DESCRIPTION OF THE ILLUSTRATED EMBODIMENT, ON PAGES 3 AND 4 OF THE SPECIFICATION]

The nasal cannula 10 of one embodiment of the present invention consists of a generally tubular face piece 12 having two nares 13 and 14 and a septum 15 disposed in the center of the face piece 12 between the openings 16 and 17, respectively, of the nares 13 and 14 (see Figs. 2, 3 and 4). The openings 21 and 22 (treating gas entrance and exhalation gas exit, respectively) on the ends of the face piece 12 are affixed to separate tubes 23 and 24 as shown in Fig. 1, which are separately connected to a source of insufflating gas (G), such as oxygen, and a commercial carbon dioxide monitoring unit (shown as A) which, in turn, has or is connected to a vacuum pump or other means for drawing exhaled breath containing carbon dioxide into an instrument that is capable of measuring the concentration of the carbon dioxide in the sampled gas.

During use of the cannula for both insufflation and the monitoring of carbon dioxide concentration in the exhaled breath (depicted schematically in Fig. 1), the readings for end-tidal carbon dioxide can become distorted where there is undesirable mixing with room air or with excess insufflating gas. Likewise, carbon dioxide measuring devices which typically employ varying amounts of suction or vacuum to obtain the gas sample to be analyzed, can unduly dilute the sample or more seriously can draw the tip 30 of the sampling nare (representatively shown in Fig. 3) onto the adjacent surface of the tissue of the nasal passage and occlude the opening (exhalation gas entrance) 31 thereby restricting or even preventing sampling of the exhaled gases for their carbon dioxide concentration.

1-5. (CANCELED)

6. (CURRENTLY AMENDED) A method of constructing manufacturing a nasal cannula for insufflating a treating gas into a nose of a patient and measuring a carbon dioxide content in [[the]] an exhalation gas of the patient, said method comprising the steps of:

providing a hollow body with a treating gas entrance and an exhalation gas exit at opposed ends thereof, and separating the forming a hollow body into a separate inhalation manifold and an exhalation manifold with the treating gas entrance communicating with the inhalation manifold and the exhalation gas exit communicating with the exhalation manifold;

integrally forming attaching a first fixed length hollow nasal prong [[to]] with the hollow body so that the first fixed length hollow nasal prong communicates with said inhalation manifold to define a breathing treating gas insufflating passage extending between a breathing the treating gas entrance and a breathing treating gas exit such that all of the treating gas supplied to the treating gas entrance is exhausted solely via the treating gas exit;

integrally forming attaching a second fixed length hollow nasal prong [[to]] with the hollow body so that the second fixed length hollow nasal prong communicates with said exhalation manifold to define an exhalation gas sampling passage extending between a tip of an exhalation gas entrance and [[an]] the exhalation gas exit;

forming at least one lateral at least an additional opening in at least said second fixed length hollow nasal prong, the at least one lateral opening being positioned between the exhalation gas entrance and the exhalation gas exit; and

sizing the at least one lateral additional opening[[s]] large enough to prevent sufficient suction from developing at the [tip] exhalation gas entrance to occlude the exhalation gas entrance, and small enough to prevent dilution of [[the]] an exhaled gas sample by ambient air or excess insufflation gas.

7. (CURRENTLY AMENDED) The method according to claim 6, further comprising the step of sizing the at least one lateral additional opening[[s]] in said second prong between about .05 to .07 of an inch in diameter.

8. (CURRENTLY AMENDED) The method according to claim 6, further comprising the step of forming a pair of coaxially aligned additional lateral openings in said second fixed length hollow nasal prong.

9. (CURRENTLY AMENDED) The method according to claim 7, further comprising the step of locating the at least one lateral additional opening[[s]] in said second fixed length hollow nasal prong substantially adjacent the attachment between integrally formation of the second fixed length hollow nasal prong with the hollow body the exhalation manifold and the second nasal prong.

10. (CURRENTLY AMENDED) A method of constructing manufacturing a nasal cannula for insufflating a treating gas into a nose of a patient and measuring a carbon dioxide content in [[the]] an exhalation gas of the patient, said method comprising the steps of:

internally partitioning forming a hollow body into a separate inhalation manifold and [[an]] a separate exhalation manifold;

integrally forming attaching a first fixed length hollow nasal prong [[to]] with said inhalation manifold to define a breathing treating gas insufflating passage extending between a breathing treating gas entrance and a breathing treating gas exit such that all of the treating gas supplied to the treating gas entrance is exhausted solely via the treating gas exit;

integrally forming attaching a second fixed length hollow nasal prong [[to]] with said exhalation manifold to define an exhalation gas sampling passage extending between a tip of an exhalation gas entrance and an exhalation gas exit;

forming at least one lateral an additional opening in at least said second fixed length hollow nasal prong positioned between the exhalation gas entrance and the exhalation gas exit; and

sizing the at least one lateral additional opening in at least said second fixed length hollow nasal prong between about .05 to .07 of an inch in diameter to prevent sufficient suction from developing at the [[tip]] exhalation gas entrance to occlude the exhalation gas entrance, and to prevent dilution of the exhaled gas sample by ambient air or excess insufflation gas.

11. (CURRENTLY AMENDED) The method according to claim 10, further comprising the step of forming a pair of coaxially aligned additional lateral openings in said second fixed length hollow nasal prong.

12. (NEW) A method of manufacturing a nasal cannula for insufflating a treating gas into a nose of a patient and measuring a carbon dioxide content in an exhalation gas of the patient, the method comprising the steps of:

providing a hollow body with a treating gas entrance and an exhalation gas exit at opposed ends thereof, and forming a separate inhalation manifold and a separate exhalation manifold with the treating gas entrance communicating with the inhalation manifold and the exhalation gas exit communicating with the exhalation manifold;

integrally forming a first fixed length hollow nasal prong with the hollow body so that a first end of the first fixed length hollow nasal prong communicates with the inhalation manifold to define a treating gas insufflating passage extending between the treating gas entrance and a treating gas exit located adjacent a tip of the first fixed length hollow nasal prong such that all of the treating gas supplied to the treating gas entrance is exhausted solely via the treating gas exit;

integrally forming a second fixed length hollow nasal prong with the hollow body so that a first end of the second fixed length hollow nasal prong communicates with the exhalation manifold to define an exhalation gas sampling passage extending between an exhalation gas entrance, located adjacent a tip of the second fixed length hollow nasal prong, and the exhalation gas exit such that all of the exhalation gas received by the exhalation gas entrance is exhausted solely via the exhalation gas exit;

forming at least one lateral opening in the second fixed length hollow nasal prong, the at least one lateral opening being positioned between the exhalation gas entrance and the exhalation gas exit; and

sizing the at least one lateral opening large enough to prevent sufficient suction from developing at the exhalation gas entrance and occlude the exhalation gas entrance, but small enough to prevent dilution of an exhaled gas sample by ambient air or excess insufflation gas.